



U.S. Department  
of Transportation  
**Federal Aviation  
Administration**

# Advisory Circular

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**Subject: Electrical Equipment  
and Installations**

**Date: March 25, 2004      AC No: 25.1353-1**

**Initiated By: ANM-100      Change:**

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## **1. PURPOSE.**

a. This Advisory Circular (AC) describes an acceptable means for showing compliance with the requirements of § 25.1353(a), "Electrical Installation," and § 25.1353(c)(6) "Nickel Cadmium Battery Installation," of Title 14, Code of Federal Regulations (CFR) part 25, commonly referred to as part 25 of the Federal Aviation Regulations (FAR). Part 25 contains the airworthiness standards applicable to transport category airplanes. The means of compliance described in this document provides guidance to supplement the engineering and operational judgment that must form the basis of any compliance findings relative to electrical installation and nickel cadmium battery installation.

## **2. APPLICABILITY.**

a. The guidance provided in this document is directed to airplane manufacturers, modifiers, foreign regulatory authorities, and Federal Aviation Administration transport airplane type certification engineers, and their designees.

b. As of the issuance date, the guidance provided in this AC is harmonized with that of the European Joint Aviation Authorities (JAA). It provides a method of compliance that both the FAA and JAA have found acceptable.

c. This material is neither mandatory nor regulatory in nature and does not constitute a regulation. It describes acceptable means, but not the only means, for demonstrating compliance with the applicable regulations. The Federal Aviation Administration will consider other methods of demonstrating compliance that an applicant may elect to present. While these guidelines are not mandatory, they are derived from extensive FAA and industry experience in determining compliance with the relevant regulations. On the other hand, if we become aware of circumstances that convince us that following this AC would not result in compliance with the applicable regulations, we will not be bound by

the terms of this AC, and we may require additional substantiation or design changes as a basis for finding compliance.

d. This material does not change, create any additional, authorize changes in, or permit deviations from, regulatory requirements.

### **3. BACKGROUND.**

a. Effective February 1, 1965, part 25 was added to 14 CFR to replace Part 4b of the Civil Air Regulations (CAR). Sections 4b.625 and 4b.625-1 of the CAR, became § 25.1353 of 14 CFR for electrical equipment and installations.

**4. DEMONSTRATION OF COMPLIANCE.** Applicants may show compliance with the requirements § 25.1353(a) by considering the following sources of interference:

a. Conducted and radiated interference caused by electrical noise generation from apparatus connected to the busbars,

b. Coupling between electrical cables or between cables and aerial feeders,

c. Malfunctioning of electrically-powered apparatus,

d. Parasitic currents and voltages in the electrical distribution and grounding systems, including the affects of lightning currents or static discharge,

e. Different frequencies between generating or other systems, and

f. The requirements of § 25.1309 should also be satisfied.

**5. DEMONSTRATION OF COMPLIANCE.** Applicants may show compliance with the requirements §§ 25.1353(c)(6)(ii) and (iii) by demonstrating the following:

a. Where temperature sensing and over-temperature warning devices are installed to comply with §§ 25.1353(c)(6)(ii) or (iii), their correct operations should be verified at agreed maintenance intervals in addition to compliance with §§ 25.1309(a) and (b).

*/s/ Kalene C. Yanamaru*  
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